1. Description

This prototyping PCB is designed for use with the ARM MBED module. The board has two through hole, single in line sockets, which accommodate the 40 pin MBED.
module. The PCB also comes fitted with a power input connector for easily connection of the power to the mbed module. All the tracking of the power is done on the mbed matrix board so all the user has to do is connect the power supply and insert the mbed module and the board is ready to go.

2. Footprints

The main features of the board are as follows:

- PSU socket, centre positive to provide power to the 40 pin MBED module.
- Through hole, Ethernet socket footprint for use with Ethernet connectors with built in magnetic.
- Surface mount SD Card connector footprint.
- Surface mount miniUSB footprint.
- Single in line row of 12 x 0.1 inch through-hole footprint for use with Spark Fun LCD modules.
- 3 x SO8 footprints.
- 2 x TSSOP8 footprints.
- 2 x SOT23-3 footprints.
- 1 x SOT23-6 footprint.
- 2 x SOT363-6 footprints.
- 1 x SOT223 footprint.
- 1 x SO16 footprint.
- 1 x wide SO16 footprint.
- 1 x TSSOP28 footprint.
- 1 x wide TSSOP28 footprint.
- 1 x TO252 footprint.
- Each MBED pin is bought out to a plated through hole for connection to the rest of your system.
- 18 x 19 through plated holes on a general purpose on 0.1 inch pitch matrix.
- An additional row of holes with larger holes and pads for use with power connectors.
- An additional row of holes on 0.15 inch pitch for use with D connector and wider pitch devices.
- Additional ground and power pads.

3. Mounting

Whilst most of the SMT footprint can be soldered by hand when required, the miniUSB connector and the SD Card connector may require the use of a bit of solder paste and a hot air gun to successfully mount, although both of these can be soldered in the classical way by an experienced person with a conventional soldering iron.

The board is populated with foot prints on both sides which are bought out to a common 0.1 inch pitch array of through-hole pads. This means an SO8 footprint for example has on the reverse a TSSOP8 footprint, which means the user has the option of either placing an SO8 device or a TSSOP8 but not both.

A similar arrangement is used with the TSSOP28 which has a standard width and wide bodied variant on the opposite sides of the PCB. The user can use either one but not both at the same time. The larger TSSOP28 footprint can for example be also used to mount more TSSOP8 if this is required in the system.

There is a pretty good mix of footprints, which allow for D connectors, power connector, Pentawatt packages and standard DIP IC’s to be placed on the board, along with the more tricky SMT footprints.

There is a single 12 way row of pads which can be used with the Spark Fun LCD displays, which have the same physical layout. The routing for this is included on the board. Similarly the routing for the Ethernet, the SD card and the miniUSB has been included also.

4. Power Supply

The external power supply is not included. The user should provide his own power supply with centre positive arrangement to fit the connector. Refer to the mbed manual for details on the minimum and maximum voltages the mbed can operate with.
Fig 2: Top view of the mbed matrix board.
Fig 3: Bottom view of the mbed matrix board.